WINSOURCE ELECTRONICS

THE DATASHEET OF

EEFCD0K220ER

Surface Mount Type **SP-Cap**

Series: **FD, CD, UD, UE**

Old series

[Our Requests]
Since this series is old, we don't recommend you to adopt it but CX & SX series for your new design.



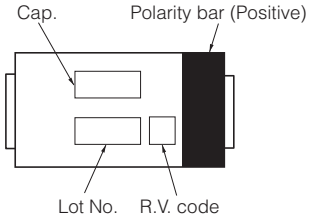
■ Features

- Low ESR
- Excellent Noise-absorbent Characteristics
- RoHS directive compliant

■ Specifications

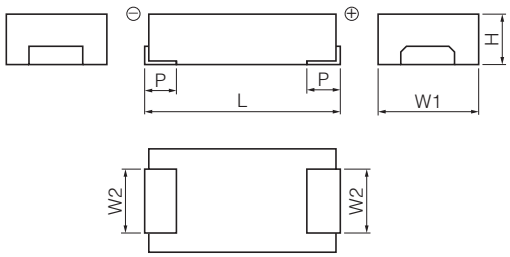
Series & Size Code	FD	CD	UD	UE
Category Temp. Range	–40 °C to +105 °C			
Rated Voltage Range	2 V.DC to 12.5 V.DC	2 V.DC to 16 V.DC	2 V.DC to 8 V.DC	2 V.DC to 8 V.DC
Nominal Cap.Range	15 µF to 68 µF	2.2 µF to 220 µF	68 µF to 470 µF	100 µF to 560 µF
Capacitance Tolerance	±20 %			
DC Leakage Current	Reflow 240 °C : I ≦ 0.06 CV (µA) 2minutes (2 V.DC to 4 V.DC) I ≦ 0.04 CV or 3 (µA) 2 minutes (6.3 V.DC to 16 V.DC) (Whichever is greater) Reflow 260 °C : I ≦ 0.1 CV (µA) 2 minutes			
tan δ	≦ 0.06 (120 Hz/+20 °C)		≦0.10 (120 Hz/+20 °C)	
Surge Voltage	Rated Voltage × 1.25 (15 °C to 35 °C)			
Endurance	After applying rated voltage for 1000 hours at 105 °C±2 °C, and then being stabilized at +20 °C, capacitor shall meet the following limits.			
	Capacitance change	±10% of initial measured value		
	tan δ	≦ Initial specified value		
	DC leakage current	≦ Initial specified value		
Moisture resistance	After storing for 500 hours at 60 °C, 90 %			
	Capacitance change of initial measurd value	2, 2.5 V.DC	4 V.DC	6.3 V.DC / 8 V.DC to 16 V.DC
		+70, –20 %	+60, –20 %	+50, –20 % / +40, –20 %
	tan δ	≦ 200 % of initial specified value		
	DC leakage current	≦ Initial specified value		

■ Marking



■ Dimensions in mm(not to scale)

(Unit : mm)



Series & Size Code	L±0.2	W1±0.2	W2±0.1	H	P±0.3
FD	7.3	4.3	2.4	1.1±0.1	1.3
CD	7.3	4.3	2.4	1.8±0.1	1.3
UD	7.3	4.3	2.4	2.8±0.2	1.3
UE	7.3	4.3	2.4	4.2±0.1	1.3

✻ Externals of figure are the reference.

Design and specifications are each subject to change without notice. Ask factory for the current technical specifications before purchase and/or use.
Should a safety concern arise regarding this product, please be sure to contact us immediately.

02 Mar. 2015

■ Standard Products

Reflow *3 | <260 °C>

Series & Size Code	Rated Voltage (V.DC)	Capacitance (±20 %) (μF)	Case Size L (mm)	Case Size W (mm)	Case Size H (mm)	Specification *1 Ripple current (Ar.m.s.)	Specification *2 ESR (mΩ max.)	Part number	Reflow *4 240 °C	Reflow 260 °C	Min. Packaging Q'ty (pcs)
FD	2	68	7.3	4.3	1.1	2.0	28	EEFFD0D680R	○	—	3500
	2.5	56	7.3	4.3	1.1	2.0	28	EEFFD0E560R	○	—	3500
	4	39	7.3	4.3	1.1	2.0	28	EEFFD0G390R	○	—	3500
		47	7.3	4.3	1.1	2.0	28	EEFFD0G470R	○	—	3500
	6.3	33	7.3	4.3	1.1	2.0	28	EEFFD0J330R	○	—	3500
	8	22	7.3	4.3	1.1	2.0	28	EEFFD0K220R	○	—	3500
	12.5	15	7.3	4.3	1.1	1.4	40	EEFFD1B150R	○	—	3500
CD	2	100	7.3	4.3	1.8	2.5	18	EEFCD0D101ER	—	○	3500
			7.3	4.3	1.8	2.7	15	EEFCD0D101XE	—	○	3500
		120	7.3	4.3	1.8	2.5	18	EEFCD0D121ER	—	○	3500
			7.3	4.3	1.8	2.7	15	EEFCD0D121XE	—	○	3500
		150	7.3	4.3	1.8	2.5	18	EEFCD0D151ER	—	○	3500
		180	7.3	4.3	1.8	2.5	18	EEFCD0D181ER	—	○	3500
		220	7.3	4.3	1.8	2.5	18	EEFCD0D221ER	—	○	3500
	2.5	82	7.3	4.3	1.8	2.5	18	EEFCD0E820ER	—	○	3500
			7.3	4.3	1.8	2.7	15	EEFCD0E820XE	—	○	3500
		100	7.3	4.3	1.8	2.5	18	EEFCD0E101ER	—	○	3500
			7.3	4.3	1.8	2.7	15	EEFCD0E101XE	—	○	3500
		120	7.3	4.3	1.8	2.5	18	EEFCD0E121ER	—	○	3500
		150	7.3	4.3	1.8	2.5	18	EEFCD0E151ER	—	○	3500
	4	56	7.3	4.3	1.8	2.5	18	EEFCD0G560ER	—	○	3500
			7.3	4.3	1.8	2.7	15	EEFCD0G560XE	—	○	3500
		68	7.3	4.3	1.8	2.5	18	EEFCD0G680ER	—	○	3500
			7.3	4.3	1.8	2.7	15	EEFCD0G680XE	—	○	3500
		82	7.3	4.3	1.8	2.5	18	EEFCD0G820ER	—	○	3500
			7.3	4.3	1.8	2.7	15	EEFCD0G820XE	—	○	3500
		100	7.3	4.3	1.8	2.5	18	EEFCD0G101ER	—	○	3500
	6.3	10	7.3	4.3	1.8	1.4	55	EEFCD0J100ER	—	○	3500
		22	7.3	4.3	1.8	1.6	40	EEFCD0J220ER	—	○	3500
		33	7.3	4.3	1.8	2.0	28	EEFCD0J330ER	—	○	3500
		47	7.3	4.3	1.8	2.5	18	EEFCD0J470ER	—	○	3500
			7.3	4.3	1.8	2.7	15	EEFCD0J470XE	—	○	3500
		68	7.3	4.3	1.8	2.5	18	EEFCD0J680ER	—	○	3500
			7.3	4.3	1.8	2.7	15	EEFCD0J680XE	—	○	3500
	8	8.2	7.3	4.3	1.8	1.4	55	EEFCD0K8R2ER	—	○	3500
		15	7.3	4.3	1.8	1.6	40	EEFCD0K150ER	—	○	3500
		22	7.3	4.3	1.8	2.0	28	EEFCD0K220ER	—	○	3500
		33	7.3	4.3	1.8	2.5	18	EEFCD0K330ER	—	○	3500
		47	7.3	4.3	1.8	1.8	25	EEFCD0K470ER	—	○	3500
	10	22	7.3	4.3	1.8	1.6	30	EEFCD1A220ER	—	○	3500
		33	7.3	4.3	1.8	1.8	25	EEFCD1A330ER	—	○	3500
		39	7.3	4.3	1.8	1.8	25	EEFCD1A390ER	—	○	3500
	12.5	4.7	7.3	4.3	1.8	1.0	80	EEFCD1B4R7R	○	—	3500
		10	7.3	4.3	1.8	1.0	60	EEFCD1B100R	○	—	3500
		15	7.3	4.3	1.8	1.3	50	EEFCD1B150R	○	—	3500
		22	7.3	4.3	1.8	1.6	30	EEFCD1B220R	○	—	3500
	16	2.2	7.3	4.3	1.8	1.0	110	EEFCD1C2R2R	○	—	3500
		4.7	7.3	4.3	1.8	1.0	80	EEFCD1C4R7R	○	—	3500
		6.8	7.3	4.3	1.8	1.0	70	EEFCD1C6R8R	○	—	3500
		8.2	7.3	4.3	1.8	1.3	45	EEFCD1C8R2R	○	—	3500
UD	2	330	7.3	4.3	2.8	3.0	15	EEFUD0D331ER	—	○	2000
			7.3	4.3	2.8	3.3	12	EEFUD0D331XE	—	○	2000
			7.3	4.3	2.8	3.4	9	EEFUD0D331LE	—	○	2000
		390	7.3	4.3	2.8	3.0	15	EEFUD0D391ER	—	○	2000
			7.3	4.3	2.8	3.4	9	EEFUD0D391LE	—	○	2000
		470	7.3	4.3	2.8	3.4	9	EEFUD0D471LE	—	○	2000
	2.5	220	7.3	4.3	2.8	3.0	15	EEFUD0E221ER	—	○	2000
			7.3	4.3	2.8	3.3	12	EEFUD0E221XE	—	○	2000
			7.3	4.3	2.8	3.4	9	EEFUD0E221LE	—	○	2000
		270	7.3	4.3	2.8	3.0	15	EEFUD0E271ER	—	○	2000
			7.3	4.3	2.8	3.4	9	EEFUD0E271LE	—	○	2000

*1: Ripple current (100 kHz/ +20 to +105 °C), *2: ESR (100 kHz/+20 °C)

*3: Please refer to the page of "Mounting Specifications".

*4: Please contact Panasonic for details of allowable 240 °C reflow condition.

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■ Standard Products

Reflow *3 | <260 °C>

Series & Size Code	Rated Voltage (V.DC)	Capacitance (±20 %) (μF)	Case Size L (mm)	Case Size W (mm)	Case Size H (mm)	Specification *1 Ripple current (Ar.m.s.)	Specification *2 ESR (mΩ max.)	Part number	Reflow *4 240 °C	Reflow 260 °C	Min. Packaging Q'ty (pcs)
UD	4	120	7.3	4.3	2.8	3.0	15	EEFUD0G121ER	—	○	2000
			7.3	4.3	2.8	3.4	12	EEFUD0G121XE	—	○	2000
		150	7.3	4.3	2.8	3.0	15	EEFUD0G151ER	—	○	2000
			7.3	4.3	2.8	3.3	12	EEFUD0G151XE	—	○	2000
			7.3	4.3	2.8	3.4	9	EEFUD0G151LE	—	○	2000
		180	7.3	4.3	2.8	2.5	18	EEFUD0G181ER	—	○	2000
			7.3	4.3	2.8	3.4	9	EEFUD0G181LE	—	○	2000
	6.3	100	7.3	4.3	2.8	3.0	15	EEFUD0J101ER	—	○	2000
			7.3	4.3	2.8	3.3	12	EEFUD0J101XE	—	○	2000
		120	7.3	4.3	2.8	3.0	15	EEFUD0J121ER	—	○	2000
			7.3	4.3	2.8	3.3	12	EEFUD0J121XE	—	○	2000
			7.3	4.3	2.8	3.4	9	EEFUD0J121LR	○	—	2000
		150	7.3	4.3	2.8	2.5	18	EEFUD0J151ER	—	○	2000
			7.3	4.3	2.8	3.4	9	EEFUD0J151LR	○	—	2000
	8	68	7.3	4.3	2.8	3.0	15	EEFUD0K680ER	—	○	2000
		100	7.3	4.3	2.8	2.5	18	EEFUD0K101ER	—	○	2000
UE	2	270	7.3	4.3	4.2	3.3	12	EEFUE0D271ER	—	○	2000
			7.3	4.3	4.2	3.5	10	EEFUE0D271XE	—	○	2000
		330	7.3	4.3	4.2	3.3	12	EEFUE0D331ER	—	○	2000
			7.3	4.3	4.2	3.5	10	EEFUE0D331XE	—	○	2000
		390	7.3	4.3	4.2	3.3	12	EEFUE0D391ER	—	○	2000
			7.3	4.3	4.2	3.5	10	EEFUE0D391XE	—	○	2000
			7.3	4.3	4.2	3.7	7	EEFUE0D391LE	—	○	2000
		470	7.3	4.3	4.2	3.3	12	EEFUE0D471ER	—	○	2000
			7.3	4.3	4.2	3.5	10	EEFUE0D471XE	—	○	2000
			7.3	4.3	4.2	3.7	7	EEFUE0D471LE	—	○	2000
		560	7.3	4.3	4.2	3.3	12	EEFUE0D561ER	—	○	2000
			7.3	4.3	4.2	3.7	7	EEFUE0D561LE	—	○	2000
	2.5	220	7.3	4.3	4.2	3.3	12	EEFUE0E221ER	—	○	2000
			7.3	4.3	4.2	3.5	10	EEFUE0E221XE	—	○	2000
		270	7.3	4.3	4.2	3.3	12	EEFUE0E271ER	—	○	2000
			7.3	4.3	4.2	3.5	10	EEFUE0E271XE	—	○	2000
		330	7.3	4.3	4.2	3.3	12	EEFUE0E331ER	—	○	2000
			7.3	4.3	4.2	3.5	10	EEFUE0E331XE	—	○	2000
			7.3	4.3	4.2	3.7	7	EEFUE0E331LE	—	○	2000
		390	7.3	4.3	4.2	3.3	12	EEFUE0E391ER	—	○	2000
			7.3	4.3	4.2	3.7	7	EEFUE0E391LE	—	○	2000
		470	7.3	4.3	4.2	3.3	12	EEFUE0E471ER	—	○	2000
			7.3	4.3	4.2	3.7	7	EEFUE0E471LE	—	○	2000
	4	180	7.3	4.3	4.2	3.3	12	EEFUE0G181ER	—	○	2000
			7.3	4.3	4.2	3.5	10	EEFUE0G181XE	—	○	2000
		220	7.3	4.3	4.2	3.3	12	EEFUE0G221ER	—	○	2000
			7.3	4.3	4.2	3.5	10	EEFUE0G221XE	—	○	2000
			7.3	4.3	4.2	3.7	7	EEFUE0G221LE	—	○	2000
		270	7.3	4.3	4.2	3.3	12	EEFUE0G271ER	—	○	2000
			7.3	4.3	4.2	3.7	7	EEFUE0G271LE	—	○	2000
		330	7.3	4.3	4.2	3.3	12	EEFUE0G331ER	—	○	2000
	6.3	150	7.3	4.3	4.2	3.3	12	EEFUE0J151ER	—	○	2000
			7.3	4.3	4.2	3.5	10	EEFUE0J151XE	—	○	2000
		180	7.3	4.3	4.2	3.3	12	EEFUE0J181ER	—	○	2000
			7.3	4.3	4.2	3.5	10	EEFUE0J181XE	—	○	2000
			7.3	4.3	4.2	3.7	7	EEFUE0J181LR	○	—	2000
		220	7.3	4.3	4.2	3.0	15	EEFUE0J221ER	—	○	2000
			7.3	4.3	4.2	3.7	7	EEFUE0J221LR	○	—	2000
	8	100	7.3	4.3	4.2	3.3	12	EEFUE0K101ER	—	○	2000
		150	7.3	4.3	4.2	3.0	15	EEFUE0K151ER	—	○	2000

*1: Ripple current (100 kHz/ +20 to +105 °C), *2: ESR (100 kHz/+20 °C)
*3: Please refer to the page of "Mounting Specifications".
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